

## Chapter 1

# **Approach**

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This technical memorandum presents an analysis of potential impacts on wildlife that could result from implementation of the Legacy Parkway project. The analysis focuses on direct, indirect, and cumulative impacts that could affect wildlife species—particularly migratory species—that use the Great Salt Lake Ecosystem (GSLE).

To address the concerns raised by the U.S. Court of Appeals for the Tenth Circuit regarding the analysis of impacts on wildlife, the area considered in this analysis extends beyond the boundaries of the wildlife study area considered in the final environmental impact statement (Final EIS) (Federal Highway Administration et al. 2000). This study analyzes impacts on species known to occur within the project study area at both project and regional levels. (The geographic extent of the project-level and regional-level analyses is described in Chapter 2, *Affected Environment*.) The following effects were analyzed.

- Direct habitat loss.
- Combined effects of changes in lake level and direct habitat loss from project alternatives.
- Habitat fragmentation.
- Changes in habitat quality (e.g., from changes in air and water quality).
- Habitat modification (e.g., from changes in hydrology and impacts associated with proposed landscaping).
- Wildlife highway mortality.
- Artificial light disturbance.
- Highway noise disturbance.
- Human disturbance.
- Effects on special-status wildlife.
- Cumulative impacts (including effects of historic, present, and reasonably foreseeable future actions).

Impacts were identified and assessed on both a habitat and a species-specific basis. Habitat-based impact analysis is a standard, scientifically valid, and widely accepted method for evaluating project effects on wildlife. This methodology was fully reviewed and approved by the Legacy Parkway science technical team (STT), and was based on the best available biological information on bird species in the project study area. Local surveys of bird populations in both the regional and project study areas (Paul and

Manning 2002; Dolling 2003) and scientific literature were used to estimate species densities and to verify the effects of habitat loss and change. It was determined that habitat availability and quality are key determinants of long-term viability of species within the regional and project study areas. Accordingly, the analysis of impacts on wildlife was designed to provide specific quantitative or qualitative information on the effects of the proposed action on wildlife species and their habitats, and in particular on migratory birds.

To ensure that the best available scientific information was acquired and appropriately analyzed for this memorandum, a two-tiered technical review process was established. For the first tier of the process, a wildlife technical team (WTT) was formed, consisting of ecologists and biologists from the Federal Highway Administration (FHWA), the U.S. Army Corps of Engineers (Corps), the Utah Department of Transportation (UDOT), and these agencies' representative technical consultants. The WTT was responsible for reviewing and making recommendations on the general technical analysis approach and the methods used to identify technical issues requiring a higher level of review.

For the second tier, the STT was formed, consisting of the WTT members and wildlife biologists and technical experts from the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), and the Utah Department of Natural Resources (UDNR). The STT provided focused review of and recommendations on specific scientific aspects of data and methods used, and on the results of analyses as they were completed.

This two-tiered review process was designed to provide an efficient and comprehensive approach for completing the technical analysis and for ensuring quality control of the results presented in this technical memorandum. Chapter 5, *List of Preparers*, provides a complete list of the members of the WTT and the STT.